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10/555,266	11/01/2005	Peter Fuhrmann	DE03 0145 US1	9354
65913	7590	08/10/2009	EXAMINER	
NXP, B.V. NXP INTELLECTUAL PROPERTY & LICENSING M/S41-SJ 1109 MCKAY DRIVE SAN JOSE, CA 95131			BARON, HENRY	
			ART UNIT	PAPER NUMBER
			2416	
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			08/10/2009	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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ip.department.us@nxp.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/555,266	<b>Applicant(s)</b> FUHRMANN ET AL.	
	<b>Examiner</b> HENRY BARON	<b>Art Unit</b> 2416	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 May 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### ***Detailed Action***

## **ERROR DETECTION AND SUPPRESSION IN A TDMA-BASED NETWORK NODE**

### ***Response to Arguments/Remarks***

1. Claims 1 – 20 are pending in the application.
2. Applicant's arguments filed 05/14/2009 have been fully considered and are persuasive.
3. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.
4. After subsequent search, Examiner finds Applicant's arguments with respect to claim 1 -20 have been considered but are moot in view of the new ground(s) of rejection

### ***Objection to Abstract***

5. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required. The mere inclusion of the front page of the PCT is insufficient.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

a. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 11 – 12, and 17 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Belschner, et al (U.S. Patent 7103805), in view of Vail (U.S. Patent 6918068)

Art Unit: 2416

8. With regards to claims 1, 12 and 17, Belschner teaches of a network node and device comprising a communication unit for the implementation of a communication protocol for communication with other network nodes via a communication medium a bus monitor, and a bus driver, where the communication unit and the bus monitor (2: [0046] read The bus monitor unit which is integrated into the central node is suitable for monitoring access of users to the data bus, without having to install the bus monitor unit in a decentralized controller for this purpose. The central bus monitor unit i.e. bus monitor unit and the diagnostic unit i.e. communication unit can be used to prevent faulty access to the data bus by a user) each mutually independently; 3: [0030] read [t]he central node with the integrated diagnostic unit therefore forms a closed system which preferably also has fault-handling routines, so that the central node is operationally capable independently of external diagnostic units, and has its own fault detection means i.e. mutually independent. AND 5: [0047-0048] read ... In one embodiment, for example, a bus driver can either transmit or receive at one time. (That is, only the transmitter or the receiver in a driver can ever be connected through to the data bus.) The activation of the transmission/reception switches can be carried out in the user itself on the basis of signal activity on the bus line... ..... ) ); each implement an access time schedule contained in a configuration data record (2: [0013] read For this purpose, a time-registering means i.e. access time schedule is provided which registers the time patterns of the data bus for the transmission of a user i.e. configuration data record and, triggered by these time patterns, assigns a transmission slot to each user.) and each make available, in accordance with the access time schedule, a release signal for the bus driver the bus driver evaluates these two release signals (3: [0013] read Based on the second time pattern made available to it, the diagnostic unit checks whether the bus monitor unit regularly retriggers in response to the time patterns by means of the trigger signals i.e. evaluates these two release signals ).

9. However Belschner does not disclose in the event that the two release signals do not coincide of blocking the access of the network node to the communication medium.

Art Unit: 2416

10. Vail teaches this limitation (4:[0052] read . For example, the following truth table may be used to determine which communications bus 21, 22 should be selected, as will be readily appreciated by those skilled in the art. (1) BE3 BE2 BE1 Select Comments 0 0 0 R Bad BE3 0 0 1 P Bad BE2 0 1 0 P

11. Bad BE1 0 1 1 i.e. two release signals do not coincide of blocking the access of the network node to the communication medium P Normal case: P Selected, BE1-3 are all working 1 0 0 R Normal case: R Selected, BE1-3 are all working 1 0 1 R Bad BE1 1 1 0 R Bad BE2 1 1 1 P Bad BE3 In the above table, BE1= bus enable signal 1; BE2= bus enable signal 2; BE3= bus enable signal 3; R= redundant communications bus; P= primary communications bus; BE1 and BE2 are from primary controller 32; and BE3 is from the redundant bus controller 33. )

12. Vail teaches this limitation via a redundant bus system, whereby depending on the bus enable signals; communication is either made on the primary or redundant communications bus. Examiner interprets the enablement of communications on the redundant communications bus as logically equivalent to inhibiting communication on the primary communications bus. Thus, “in the event that the two release signals do not coincide of blocking the access of the network node to the communication medium” is taught because the communication system will utilize the redundant communications bus instead of the primary communication bus (inhibiting communication on the primary communication bus). The selection of the redundant communications bus is functionally equivalent to “blocking access of the network node to the communication medium” because the system does not utilize the primary communication.

13. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the bus access teachings of Belschner with the comparison circuit teachings of Vail.

14. In this manner, access to data bus can be regulated in a discipline manner so as to mitigate user collisions on the data bus or erroneously transmitting data when a single spurious enable signal is set.

Art Unit: 2416

15. In regards to claim 11, Belschner teaches of a bus driver for a network node which is provided for communication with other network nodes via a communication medium and a bus driver that evaluates two mutually independent release signals that implement an access time schedule to generate the release signals. (2: [0046] read the bus monitor unit which is integrated into the central node is suitable for monitoring access of users to the data bus, without having to install the bus monitor unit in a decentralized controller for this purpose. The central bus monitor unit i.e. bus monitor unit and the diagnostic unit i.e. communication unit can be used to prevent faulty access to the data bus by a user) each mutually independently; (5: [0006] read [t]he watchdog i.e. bus driver, monitors the cyclical synchronization of the bus monitor unit with the time patterns of the data bus i.e. evaluates two release signals for equality of the release information made available to it by two separate units for a communication medium, and switches the bus monitor unit to an inactive state when the trigger signal fails to occur, blocking or releasing the communication in a way which can be configured for all the users i.e. in the event that the release signals do not coincide, the bus driver blocks the access of the network node. And 3: [0030] read [t]he central node with the integrated diagnostic unit therefore forms a closed system which preferably also has fault-handling routines, so that the central node is operationally capable independently of external diagnostic units, and has its own fault detection means i.e. mutually independent.); and 2: [0013] read For this purpose, a time-registering means i.e. access time schedule is provided which registers the time patterns of the data bus for the transmission of a user i.e. configuration data record and, triggered by these time patterns, assigns a transmission slot to each user.) and each make available, in accordance with the access time schedule, a release signal for the bus driver the bus driver evaluates these two release signals and 3: [0013] read based on the second time pattern made available to it, the diagnostic unit checks whether the bus monitor unit regularly retriggers in response to the time patterns by means of the trigger signals i.e. evaluates these two release signals )

Art Unit: 2416

16. However, Belschner does not disclose where the bus driver evaluates two release signals for equality of the release information made available to it by two separate units.

17. Vail teaches this limitation (4:[0052] read . For example, the following truth table may be used to determine which communications bus 21, 22 should be selected, as will be readily appreciated by those skilled in the art. (1) BE3 BE2 BE1 Select Comments 0 0 0 R Bad BE3 0 0 1 P Bad BE2 0 1 0 P Bad BE1 0 1 1 i.e. two release signals do not coincide of blocking the access of the network node to the communication medium P Normal case: P Selected, BE1-3 are all working 1 0 0 R Normal case: R Selected, BE1-3 are all working 1 0 1 R Bad BE1 1 1 0 R Bad BE2 1 1 1 P Bad BE3 In the above table, BE1= bus enable signal 1; BE2= bus enable signal 2; BE3= bus enable signal 3; R= redundant communications bus; P= primary communications bus; BE1 and BE2 are from primary controller 32; and BE3 is from the redundant bus controller.)

18. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the bus access teachings of Belschner with the comparison circuit teachings of Vail.

19. In this manner, access to data bus can be regulated in a discipline manner so as to mitigate user collisions on the data bus or erroneously transmitting data when a single spurious enable signal is set.

20. Claims 3 – 10, 13, 15 – 16 and 18 – 20 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Belschner, et al (U.S. Patent 7103805), in view of in view of Vail (U.S. Patent 6918068) and in further view of Riley et al (U.S. Patent 5706289).

21. With regards to claims 3, 15, and 19, Belschner, modified teaches of a network node as claimed in claim 1, characterized in that the release signals of the communication unit and the bus monitor, but does not teach that the signals are coded inversely to one another.

22. The polarities of signals in VLSI are determined by the physical design, timing and performance specification of the logic as shown in, for example, in Riley Figure 13 element 445 and 446.

Art Unit: 2416

23. It would have been obvious at the time the invention was made by a person of to having ordinary skill in the art to modify the teachings of Belschner, modified Riley so that release signals are coded inversely to one another if the design so dictated.

24. In this manner, the time slot of bus could be blocked or not in the most expedient manner per a specific set of physical specifications.

25. In regards to claims 4 – 5, 16, and 20, Belschner modified, teach a network node characterized in that the evaluation of the two release signals is undertaken in the bus driver, but does not teach the of the influence of a low-pass filter or of a low-pass filter of configurable design.

26. Riley teaches of the evaluation of the two signals is undertaken in the bus driver with the influence of a low-pass filter or of a low-pass filter of configurable design. (8: [0024] read shown in block form in FIG. 2A, the channel input signal at the channel A input terminal to the integrated circuit is fed through a dual signal conditioning circuit before further processing. The signal conditioning circuit includes a Channel A signal conditioning circuit (shown in FIG. 3A) i.e. configurable low-pass filter. As shown in FIG. 3A, the signal conditioning circuit 122 has an anti-aliasing filter, a hysteresis circuit, and a digital low pass filter.)

27. It would have been obvious at the time the invention was made by a person of to having ordinary skill in the art to modify the teachings of Belschner, modified Riley to condition the input release signal with a configurable low pass filter.<sup>6</sup>

28. In this manner, noise or channel transients can be mitigated thus improving the fidelity of the protection time slot logic for the bus.

29. In regards to claims 6 and 7, Belschner teaches that error-state detection generated in the bus driver is resettable from the outside and can be signaled to the outside. (4: [0056] read [t]he bus monitor unit is connected via an interface to a communications computer of the central node, which loads and calculates the time patterns i.e. access time schedule contained in a configuration data record, for the



Art Unit: 2416

accepted transmission slots of the individual users i.e. communication nodes. The interface is a component of the configuration means).

30. Regarding claim 8, Belschner teaches that the bus monitor and the bus driver are integrated into one unit. (2: [0045] read the bus monitor unit is integrated into the central node is suitable for monitoring access of users to the data bus, without having to install the bus monitor unit in a decentralized controller for this purpose.).

31. In consideration of claim 9, Belschner teaches a network with network nodes where the network nodes communicate with each other via the communication medium. (Figure 1 element 6).

32. With regards to claim 10, Belschner teaches where redundant network channels are provided, wherein a bus monitor and a bus driver are assigned to each network channel in each network node (7: [0004] read FIG. 3 shows an example of a time pattern such as can be determined by the unit for setting the configuration parameters 21. First, two time slots are provided for the user 7, followed by a time slot for the third user 9. The two time slots which are represented in a hatched form are marked as blocked by the hatching, i.e. the bus monitor unit 5 has detected a faulty transmission signal at this time; as a result, the time slot is blocked both for transmission and reception. However, on the other hand, it would also be possible for signal filtering to take place so that the correct signal is generated by means of a filter or a redundant channel.).

33. In regards to claim 13 and 18, Belschner modified teaches the limitations of claim 12, but does not disclose where the bus driver evaluates the independently-generated release signals to ensure that both signals match one another to mitigate a network access condition resulting from an improperly-generated release signal.

34. Riley teaches where the bus driver evaluates the independently-generated release signals to ensure that both signals match one another to mitigate a network access condition resulting from an improperly-generated release signal. (6: [0061] read in mode one, during the first part of the time slot 65,

Art Unit: 2416

data is placed on the data bus 46 by one or more input data link modules 32 and the data remains on the data bus 46 for the entire time slot i.e. both signals match one another. At the midpoint 64 of the time slot 65, the data on the data bus 46 is copied from the bus to output terminals 98 and 100 on at least one output data link module 32 for use by at least one output device 54. i.e. to mitigate a network access condition resulting from an improperly-generated release signal )

35. It would have been obvious at the time the invention was made by a person of to having ordinary skill in the art to modify the teachings of Belschner, modified Riley so that release signals are properly matched.

36. In this manner, the time slot of bus could be blocked and an improperly-generated release signal can be mitigated

37. Claims 2 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belschner, et al (U.S. Patent 7103805), in view of in view of Vail (U.S. Patent 5528168) and in further view of Baek et al (U.S. Patent 5680554).

38. In consideration of claims 2 and 14, Belschner, modified Riley teaches of a bus driver activating the transmission stage if there is no blockage of access to the communication medium present, but does not teach of transmission request signal to the bus driver.

39. Baek teaches of transmission request signal to the bus driver (4: [0054] read NRQ represents the basic unit of a data transmission request signal...)

40. It would have been obvious at the time the invention was made by a person of to having ordinary skill in the art to modify the teachings of Belschner, modified Riley with Baek.

41. In this manner, the bus driver will be enabled only when it has data to transmit thus minimizing collision with other bus drivers.

### ***Conclusion***

Art Unit: 2416

42. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENRY BARON whose telephone number is (571)270-1748. The examiner can normally be reached on 7:30 AM to 5:00 PM E.S.T. Monday to Friday.

43. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

44. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. B./  
Examiner, Art Unit 2416

**HB**

/Donald L Mills/  
Primary Examiner, Art Unit 2416